

USAWC STRATEGY RESEARCH PROJECT

**ABDICATING CLOSE AIR SUPPORT: HOW INTERSERVICE RIVALRY AFFECTS
ROLES AND MISSIONS**

by

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ABSTRACT

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Since the start of the Global War on Terror, the United States' military has gained combat experience that is broader than anything seen since World War II. Yet even as the military services take the lessons from this 'long war' and convert them into future capabilities, there is a danger that long-standing service cultures and animosities may degrade the outstanding working relationships built through the common bond of combat. This paper will look at one of those issues, Close Air Support (CAS). While close air support represents a long-standing struggle between the services, it must be looked at as symptom of the larger ill of unhealthy inter-service rivalry. This essay will trace the evolution of CAS, beginning with the early years of aviation, the maturation of the debate through World War II, the Korean and Vietnam Wars, and moving through the first Gulf War and the events after September 11, 2001. These historical cases illuminate the reasons this disagreement arose and became a major point of conflict between the Army and Air Force. Finally, this paper will look at the present situation, assess future trends that should force mutual understanding between the services and create a more effective joint team.

ABDICATING CLOSE AIR SUPPORT: HOW INTERSERVICE RIVALRY AFFECTS ROLES AND MISSIONS

The United States Air Force of 2007 sits at a crossroads, but it may be a crossroads the service has seen before. Today, the Air Force finds itself in the same position it has found itself after each of our nation's major military conflicts: searching for the direction and priorities it will take into the future. The Global War on Terror has given the United States' military a training ground in almost every possible contingency, including major linear combat operations, small-scale conventional combat, counter-insurgency operations, and Special Operations on an unprecedented scale. It has been fought in the desert, in jungles, in crowded urban areas, in mountainous terrain at extreme altitudes, as well as from the seas. It has led to a military with combat experience unlike any since World War II. Yet even as the military services look to take the lessons from this 'long war' and convert them into future capabilities, there is a danger that long-standing service cultures and historical animosities threaten to degrade the outstanding working relationships built through the common bond of combat. Many historians complain that the armed services, especially the Air Force, are reluctant to study and learn from their historical relationships with the other branches of the military. Critics believe the Air Force's desire to be the "silver bullet" that can quickly achieve decisive victory has clouded the service's ability to observe the strategic landscape and modify its role to support its sister services---especially the United States Army.¹ Examining Air Force history, culture and doctrine, these critics draw the conclusion that the Air Force is full of zealots begging for the opportunity to finally show how air power alone can win our nation's wars. If these concerns are overstated, they are not idle either. Some of the Army's consternation with today's Air Force centers on issues that, in some cases, are still unresolved after 90 years. By the same token, the increasing maturity of the Air Force has fostered a focus that is more open to joint operations and interdependence.

This paper will look at one of those issues, a long standing source of friction between the Air Force and the Army: Close Air Support (CAS). Joint Publication 1-02, "DOD Dictionary of Military and Associated Terms" defines close air support as air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. The problems surrounding close air support are symptoms of the larger ill created by inter-service rivalry.

This paper will attempt to examine the debate over CAS by looking at the historical and cultural perspectives of the Air Force and the Army. It will focus on the early years of aviation, the maturation of the debate through World War II, the Korean War experience, Vietnam, and

the events after September 11, 2001. These historical cases will illuminate the reasons this disagreement arose and became one of the major points of conflict between the services. Finally, this paper will look at the present situation and the future trends that should force mutual understanding and openness between the services to create a more effective joint team.

The Birth and Maturity of the CAS Debate: 1916 Through 1945

World War I introduced the American military to close air support. The first appreciable close air support missions were flown during the battle of the Somme in July 1916.² Throughout 1917 and 1918, CAS tactics were refined and expanded to include direct support of advancing armies, as well as supporting armies in retreat. One of the greatest effects realized from CAS during World War I was the dramatic impact on the morale of both enemy and friendly ground forces. A Royal Flying Corps policy paper drafted in 1916 noted that the appearance of hostile aircraft over the battlefield affected morale “all out of proportion to the damage” which the aircraft can inflict.³ Likewise, it was recognized that friendly aircraft had a positive effect on friendly ground forces. When air operations were concentrated behind enemy lines, frontline troops complained they did not receive adequate support, not understanding the value the air forces provided by interdicting the enemy and his supplies from the front.⁴ For this reason, airmen had a difficult time convincing ground commanders of the importance of air forces unless they were directly and visibly supporting the ground forces. The Allied Commander in Chief, Marshall Ferdinand Foch, and later, the American Expeditionary Force commander, General John J. Pershing, both insisted that aircraft be used almost exclusively for immediate support for the ground armies. By 1918, experiments in centralized control of aviation assets were also vigorously opposed by Army division and corps commanders as they wanted to retain direction over “their” aviation.⁵ For the United States military, these were the first instances where the ground and air services disagreed over the roles and control measures of combat aviation, and would lay the groundwork for a struggle that has continued to the present day.

During the interwar years, Close Air Support, or attack aviation as it was called, came to languish in the shadow of bomber aviation. By 1926, the Air Corps Tactical School (ACTS) had inculcated the belief in air superiority and the primacy of fighter aircraft into doctrine, but the Air Corps had embraced the growing belief in the long-range bomber’s supremacy within the air services both at home and abroad. General Billy Mitchell aggressively argued for a separate, independent air service centered on the long-range bomber, but in the 1920’s the Army was not prepared to take this step. There was simply no immediate threat to the United States that made such a reorganization seem imperative. The 1925 court martial of General Mitchell set off

a public crusade by strategic bombing advocates which set a precedent for militancy affecting relations between the Army and air service for decades.⁶ After Mitchell's court martial, the Air Corps' overtly aggressive approach to autonomy and bomber primacy was replaced by stealthier, but more effective, methods of advocating air power. By the 1930's, air power doctrine based on strategic bombing theory reigned supreme in the Air Corps Tactical School's curriculum and therefore became embedded in American military aviation doctrine.⁷

In the ACTS manuals and text, there was a broad assertion that "the air force does not attack objectives on the battlefield or in immediate proximity thereof, except in extreme circumstances."⁸ This assertion was largely based on the vulnerability and danger to the attacking aircraft and the high risk of friendly fire incidents. By 1939, attack aviation was perceived principally as a means of battlefield interdiction. Direct attacks on massed troops would be made only in an emergency. Interdiction of the enemies supply lines was the popular role of attack aviation by this time and the Air Corps adopted the view that detaching air forces to support the ground fight would fritter it away. Brig. Gen. Henry H. Arnold's speech to the Army War College in 1937 stated the Air Corps' beliefs best when he said, "Hold it (airpower) centrally and use it in its proper place, that is, where it can exert its power beyond the influence of your other arms, to influence general action rather than the specific battle."⁹ But this view ran counter to Army culture and thus did little to improve relations between the Army and Air Corps; indeed, it led to more acrimony between the air and ground branches within the Army. It also assured that American ground and air forces were woefully unprepared to conduct close air support when war began in September, 1939.

It was only the dramatic successes of the German Luftwaffe during the 1940 drive across France, with its close collaboration between German armor and Stukas, which finally galvanized the Air Corps and Army into investing time, thought and resources into CAS.¹⁰ Still, each service watched the opening months of the war and drew different conclusions. While acknowledging the role of close air support, airmen believed the long-range bombing of industrial centers like Warsaw, Rotterdam, Brussels and Paris supported their idea that war between industrial powers would be decided not by battlefield attrition alone, but also by the destruction of a nation's capacity to make war.¹¹ By August 1941, the newly formed Headquarters, Army Air Forces' (AAF) codified its thoughts into Air War Plans Division document 1, placing strategic bombardment at the forefront of war production and planning, and relegating pursuit (which included attack) aviation to a distant second place. For ground commanders, the German army's swift drives across Europe proved the efficacy of tactical airpower working in support of the combined armor and infantry force. The Army wanted

airpower doctrine based on tactical support, and an aircraft like the JU-87 Stuka to execute that tactical mission. Air Corps leadership resisted pressure from their Army counterparts to purchase a dedicated attack aircraft, based on the lack of versatility and the vulnerability to fighters.¹² Air Force leadership tended to focus less on close air support and more on interdiction and reconnaissance when working with ground forces.

Studies of British experiences with close air support, as well as tests at Fort Benning, Georgia during 1941 taught Air Corps and Army leaders that air support was different from artillery support in that it involved more centralized control and more importantly, simple and prompt communications. Still, the United States went into war ill prepared to support the ground forces as service rivalry undermined chances for cooperation, precluded exercises involving CAS, and aroused Army suspicion that the Air Corps only paid lip service to the attack mission.

Doctrinal differences between the Army and newly renamed Army Air Force¹³ were also a source of debate prior to America's entry into the war, as there was no clear cut body of doctrine for dealing with air-ground cooperation or direct support of ground troops. By 1940, the term *Light Bombardment* had replaced *Attack* as the Air Force designation for air support to the ground force. The Air Corps Tactical School's training text proposed that using this form of airpower to supplement the firepower of the ground forces would be an incorrect employment, and would neglect the more distant and vital objectives.¹⁴ The publication of Field Manual 1-5, *Employment of Aviation in the Army*, published in 1941, added fuel to the fiery debate. It addressed the full range of air missions, but assigned aviation units to the commander of the field forces, who could further delegate them to corps or division level. For the Air Force leadership, this meant fragmenting and diluting the ability of airpower to strike across an entire front. For the Army, it supported the ground commander's need for firepower and freedom from enemy air attacks. Field Manual 31-35, *Aviation in Support of Ground Forces*, published in April 1942, readdressed the organization and employment of aviation yet again. This manual placed support aviation under the command of an air support commander, who would determine priority of air support request based on several factors. While in certain circumstances aircraft could be attached to ground units for specific missions, this manual firmly placed airpower under the centralized control of an airman. These inconsistencies reflected the disarray and unsettled state of support aviation in the early years of the war.

The decision to invade North Africa in June, 1942, forced the issue of close air support onto the Army and Air Force. Air and ground units were brought together with little to no cooperative training, and the doctrinal issues that were problems before the war were exacerbated by combat. Immediately, friction arose between ground and air commanders as

poor coordination and poor execution hampered the Allied offensive against the Axis forces. Brig. Gen. Paul Robinette of the First U.S. Armored Division sent a letter to Gen. George Marshall, U.S. Army Chief of Staff, saying that the Allied Air Forces were more focused on reports and photographs of ships sunk, cities bombed to ashes, and ports smashed than on close support for the Army's front-line positions and attacking targets in the path of the Allied ground force. In his mind, this could only be properly achieved by giving aviation to the ground commander.¹⁵ In fact, the Allied chain of command *had* placed Air Force assets under division and corps headquarters, with no centralized control of airpower. Airmen saw this as the biggest reason for the Air Force's initial failure in North Africa. Parcelling out air assets at the whim of ground commanders, a lack of centralized planning, and confusing command and control relationships created chaos and division among ground and air commanders. Not until early 1943 were all air ground support air assets placed under one command, the Allied Air Support Command under General Carl Spaatz, who would finally focus on the proper use of airpower, which in his mind, was not close air support. He believed the best use of airpower was to disarm the enemy's air forces, and then switch to interdiction against targets essential to the enemy's ability to continue the fight.¹⁶

Oddly, it would be two British officers in North Africa, Gen Bernard Montgomery and Air Vice Marshall Arthur Coningham, who would make suggestions that would eventually become the basis for U.S. Army Air Force doctrine for the remainder of the war. At a conference of Allied commanders at Tripoli in early 1943, Montgomery contended that air power should be centralized under an air commander, who would work in conjunction with the ground commander. Coningham amplified these remarks by suggesting that, "the Soldier commands the land forces, the Airman commands the air forces, and both commanders work together" to support the overall commander's intent.¹⁷ Coningham later restated his remarks, and laid out the following principles: (1) air superiority is the first priority for major land operations, (2) the strength of airpower lies in its use as flexible, rapid force, (3) centralized control is essential, (4) airpower must not be dispersed but should be concentrated, (5) ground and air staffs must work together, and (6) the plan of operation must be mutually adjusted and combined from the start.¹⁸ Coningham had unknowingly stated the basic charter for what would later become the independent United States Air Force. In April, 1943, this charter was codified in FM 100-20, *Command and Employment of Air Power*. It established centralized Air Force command of all air forces under the theater commander, and provided a formal statement of the equality of air power and land power. It stated the first priority for successful ground operations was air superiority. The second priority was interdiction, followed by close air support. It shaped the

way the Army Air Force employed tactically for the remainder of the war. Unsurprisingly, it caused a stir within the American military as many Army officers showed varying degrees of dismay about its contents and took it to be a step toward independence.¹⁹

As the war progressed, one of the greatest changes leading to effective close air support was the air control process. While intricate, the creation of extensive command and control processes where requests for CAS originated with the ground force and final decisions rested with the air commander (collocated with the numbered army command) reduced friction and increased cooperation between the air and ground forces. Air support requests were broken down as “prearranged” and “call” missions, and could be requested from the division level. Prearranged missions worked on a 24 hour planning timeline, and call missions attempted to have aircraft over the target within an hour and a half. The use of ground-based forward air controllers emerged and gained wide acceptance during 1943. These so-called “Rovers” standardized procedures, increased frontline troop morale, increased the effectiveness of close air support mission, and reduced fratricide. By late 1943, airborne forward air controllers, called “Horseflies”, also provided guidance from the air.²⁰

While notable successes were apparent by 1944, issues remained. Training and equipment problems continued to bedevil forward air controllers. Corps and division staffs continued to struggle as plans for fire and maneuver changed, and as the disposition of the front changed. As the front quickly moved westward, the distance between airfields and the forward lines grew, delaying CAS and decreasing aircraft endurance times over the battlefield. Communications equipment lacked reliability, especially the equipment used by forward air controllers. Finally, a shortage of qualified personnel was apparent at all echelons. Tours were lengthened for air support parties, and training was intensified in an attempt to ensure experienced air-to-ground liaison and terminal guidance. The ground force also had personnel issues, as noted by the firing of three of the four U.S. corps G-3 (Air) personnel within three weeks after D-Day.²¹ As a result of these issues plus the difficulty in target identification, fratricide became an issue all along the front and tensions between the Army and Air Force rose.

In the Pacific theater, CAS was hindered by the dense jungle environment that prevailed throughout the theater. Strangely, the experiences learned in the European theater were not readily translated to the Pacific. The advances made in close air support came from improved radio equipment, better target identification and experience gained by the aircrews. One area that was not as well exploited until late in 1944 was the direction of close air support from the front lines. While air support parties were in place in the theater, they were primarily used as

forward spotters. Not until early 1945 were forward controllers (who were also pilots) allowed to control and direct aircraft into the target. By the time of the invasion of Luzon, no less than twelve air support parties were involved in the amphibious landings. Despite the challenges to CAS in the Pacific Theater, over 85% of the sorties flown over Luzon from January 1945 until the official end of the war on September 2, 1945 were in direct support of ground forces.²²

During the 1944-1945 drive across the Pacific, the Marine Corps also learned how to conduct effective CAS. While the Marines used the same communications nets, flew the same tactics, and arrived over the battlefield no faster than Army Air Force aircraft, they endeared themselves to the ground forces with their obvious desire to give support. Marine aviation had no preconceived notions or doctrine extolling the primacy of strategic bombing, their only purpose was to protect and support the Marines on the ground. As a result, Marine pilots habitually went to the front to assess the target, and enjoyed an excellent working relationship with the soldiers and Marines on the ground. After the war, several books were written lauding the virtues of Marine close air support, enhancing the notion that Marine aviation did a better job of supporting the ground forces than did the Air Force.²³

Several CAS-related lessons emerged from World War II. First, ground commanders believed embedded air support parties and “on-call” and dedicated airborne fighter-bomber assets were superior to any other support. The commander knew how much strength was available and how quickly he could expect support; plus he had the ability to designate targets (as long as his air support party agreed). However, this type of support came with obvious limitations: it required complete air superiority and a large number of aircraft. These same ground commanders decried medium and large bombers for close air support, as they were considered unresponsive and unwieldy. In post-war surveys, commanders overwhelmingly believed visible close air support raised the morale of friendly troops, and was best used to break the morale of enemy troops by attacking their cohesion and communications. To these men, physical destruction of the enemy forces came a distant second to breaking the will of the enemy.²⁴ They saw the Air Force’s support as starting immediately to their front, and only working beyond that front when the support requirement was completed. For Air Force leadership, the proper method for the destruction of the enemy moved in the opposite direction, starting at the industrial and societal centers of the enemy and moving back toward the forward line of friendly troops. What many from both sides of the argument failed to accept was the fact that *both* methods were required to speed victory. The debate over the best use of airpower grew and matured during the first thirty years of combat aviation, and developed contentious patterns that seemed consistently irresolvable.

The Independent Air Force and Close Air Support: 1945-2001

After Japan's surrender in September, 1945, Army Air Force planners turned their attention to building an independent, atomic-armed Air Force. Air Force budget allocations for 1946 gave first priority to long range bomber groups and their protective fighter groups, organized in the newly formed Strategic Air Command. The Key West agreement of 1948²⁵ codified the roles and missions of the armed services, giving all Army tactical aviation to the newly formed Air Force. But tactical aviation was relegated to second class citizenship inside the new Air Force. All fighter aircraft were reassigned from Tactical Air Command to a new "Continental Air Command, which would handle both tactical and air defense missions. Immediately, training and funding for close air support were cut back, since the mission was perceived as a competition to the much more important air defense mission. In an attempt to appease the Army, the Air Force announced it would continue to provide ground support, but with B-29 and B-36 bombers.²⁶ This arrangement proved completely unacceptable to the Army, and the new command succumbed to inter-service pressure and reemerged as Tactical Air Command again within two years. By the 1949 Congressional hearings, the Air Force's method of centralized control was attacked by Army and Marine generals as defective and uncooperative with ground commanders.²⁷ When the Korean War broke out in 1950, there were very few Army or Air Force generals with air-ground experience. The air control system was makeshift and based on World War II experiences, and the Air Force was critically short of aircraft or pilots adequately trained to conduct close air support. Ironically, most early reviews of tactical air support were favorable, even from the ground commanders.²⁸ However, these feelings of good will did not last. In November, 1950, General Lawton Collins, Army Chief of Staff, filed a formal criticism of close air support with Air Force Chief of Staff Hoyt Vandenberg. Collins thought the system of cooperation and the Air Force's perceived lack of interest in CAS created an unsatisfactory situation. He proposed a revision of doctrine which provided ground commanders operational control over air assets, and he expressed the need for the Air Force to produce and distribute more tactical air control parties.²⁹ Vandenberg responded that the Air Force would not neglect close air support. Vandenberg created a study group which validated existing doctrine, but criticized both services for not creating trained staffs, controlling agencies, or communications systems capable of making the doctrine work. Still, friction remained among the services as the Army watched the effectiveness of Marine Corps close air support with envy, but refused to make the necessary changes within its own headquarters. As one Army officer put it, most of the Army in Korea followed time honored practices of integrating attacks with a fire plan which basically "consisted of a battalion commander getting into trouble and pushing

the panic button: Air Strikes!...Artillery!"³⁰ The close air support debate raged throughout the Korean conflict as mistrust grew and neither service was willing to give in to the other's argument. After the armistice in July, 1953, each service sent representatives to 5th Air Force headquarters in Seoul, Korea, to discuss the war's lessons. Despite agreement on many issues, the doctrinal issue of mandatory allocation of air assets to ground units and decentralized control of air assets remained impossible to overcome. The Air Force stood fast in its belief that interdiction remained a principle instrument of air power in war, and that using a majority of sorties for direct support to the ground force was inefficient and a misuse of airpower. As a result, neither service did much to solve the tactical or operational issues.³¹

The years leading up to American entry into the Vietnam War were filled with infighting between the services; Army-Air Force doctrine on CAS was nonexistent. Each service established study groups and boards with the apparent goal of proving that its own doctrine was correct. As usual, command and control of tactical aviation became a source of debate, even involving Secretary of Defense Robert McNamara. As the war heated up, the Americans fought over the same issues as previous wars: operational command and control, tactical and airborne control, allocation of CAS resources, and efficiency in the CAS request system. As a result of the services' desire to solve these problems, in April 1965 the Army and Air Force Chiefs of Staff signed a "Concept for Improved Joint Air-Ground Coordination."³² This agreement formalized procedures for the apportionment and allocation of tactical aircraft, in effect giving the joint commander control and authority over close air support. Another major improvement occurred when the services adopted a streamlined tactical air system which effectively created a responsive close air support system.

By late 1965, a CAS system was well established, and in fact was decreed by the Commander in Chief, Pacific, to be the primary air mission in South Vietnam. In May, 1966, the Army and Air Force air control systems were merged into one Joint Air-Ground Operations System which effectively permitted the joint commander to supervise all levels of close air support while providing the flexibility to meet sudden threats. These changes occurred just as the American buildup in Vietnam began in earnest and allowed the tactical air system to grow and mature in lockstep with the growing force structure. During the remainder of the war, CAS continued to evolve as aircraft especially designed for this mission, like the OV-10 Bronco, AC-47, AC-130 and much later the A-10, emerged. Vietnam's relatively small size also contributed to the success of CAS. Tactical aircraft were based either inside or near South Vietnam and could launch and respond within minutes of any location within the country, while aircraft already airborne could cover the entire country in less than thirty minutes. By 1968, ground

commanders were gladly utilizing the Air Forces' response time formulas, ensuring immediate CAS calls would be answered in 20 minutes if the aircraft were diverted while already airborne and 40 minutes if the aircraft had to be scrambled from the ground.³³

Surprisingly, the Vietnam War produced few instances of inter-service fighting and praise for close air support was almost universal within the Army. The biggest inter-service issues were the Army's extensive use of helicopters and the debate over a single air manager, but these did not affect the feelings of good will between the Army and Air Force over close air support. The Army Chief of Staff, General Earle Wheeler, said Army officers (some in their third war) told him the close air support they received in South Vietnam was better in quality, quantity, and responsiveness than ever before.³⁴ Even so, the post-Vietnam years saw drastic budget cuts that allowed the Air Force to backslide on CAS as so often happens to a mission deemed low priority.

During the post-Vietnam years and leading up to the collapse of the Soviet Union. The Army concepts of Defense in Depth and later, Air-Land Battle emerged as the driving forces in air-ground cooperation. A shift in Air-Land battle thinking occurred in the 1986 revision of FM 100-5. One of the greatest intellectual breakthroughs came in chapter 8 of the document, which presented, in italics, the following statement: "The Army cannot win the land battle without the Air Force." It recognized the Air Force's doctrinal definition of Battlefield Air Interdiction (BAI) as its own, with the understanding that BAI would mean air support to the Army's ground effort beyond what it could service with its own capabilities. What many in the Army did not realize was the level of disdain within the Air Force for its own BAI doctrine, which many perceived as an abdication of air power principles by handing control back to the ground commander. Despite its shortcomings, Air-Land Battle doctrine succeeded in focusing attention from the tactical level to the operational level of war. It reiterated the belief that the success or failure of deep operations can only be measured by its impact on close operations. It attempted to link the Air Force's theater-wide view of air support with the Army's operational-level perspective of the Air-Land battle and it recognized that:

Major operations will be joint undertakings with mutually supporting air and ground functions. Consequently, those functions - air interdiction, counterair operations, reconnaissance and ground maneuver - are best directed from the theater, campaign and major operation perspectives. The theater commander must concentrate air power against objectives critical to the success of the campaign or major operation.³⁵

This was a major shift towards traditional Air Force theater-wide employment/centralized control doctrine. Despite these positive changes, the Army continued to measure airpower's decisiveness primarily in its contribution to the close-in land battle.³⁶

By mid-1990, Army and Air Force doctrine were more synchronized than at any time since 1947, but world events would soon cause a divergence of the services' ideas on the most effective way to conduct air-ground operations. Iraq's invasion of Kuwait in August, 1990 led to international condemnation and plans to forcibly expel the Iraqi invader from Kuwait. As the potential for combat escalated, United States Central Command war planners developed a campaign plan based on four phases: strategic attack, air superiority, preparation of the battlefield and finally a cooperative air and ground campaign. Embedded inside this campaign plan were air plans built on entirely new ideas and concepts, many of which were not even in Air Force doctrine. Not once during the development of the air concept was the term "BAI" utilized. In its place, all air efforts inside the fire support coordination line were called CAS, and a new concepts called "Push CAS" and "kill boxes" emerged as the preferred way of dealing with unplanned enemy forces. All other missions outside the fire support coordination line were to be called air interdiction. The U.S. and coalition military response (Operation Desert Storm) began with air attacks on Iraq's military and infrastructure on January 17, 1991. So effective was the air assault that after 43 days of sustained attacks against fielded Iraqi forces, key command and control nodes, and military infrastructure, the coalition ground forces needed only 100 hours to achieve all its military objectives. As a result of the speed and success of the air campaign, less than 5 percent of all coalition air sorties were in direct support of the ground force.³⁷ Operation Desert Shield also saw the first wartime use of the Joint Forces Air Component Commander (JFACC) concept. An Air Force creation after the Goldwater-Nichols legislation of 1986 to ensure unity of command and effort of an air campaign, the JFACC would be an airman who could command and control the entire air campaign for the joint force commander, and in its truest form, control *all* the joint forces air assets.³⁸ As the JFACC, General Charles Horner anticipated the Army's request for air support. During Desert Shield, Horner also decided that Army division and corps commanders probably would ask for more sorties than they would really need because they would not want to risk running short. He was trying, as JFACC, to anticipate their true needs and plan accordingly.

Horner's concern that the theater ground commanders would press General Schwarzkopf for control over air support sorties dated from at least 11 November 1990. On that day, General Glosson, responsible to Horner for planning the offensive air campaign against Iraq, briefed the ground commanders, and they objected to what they felt was their inability to control the air attacks planned against Iraqi forces dug-in in Kuwait. The ground commanders' concerns did not

go away, even as the bombing launched during Desert Storm progressed. During a Desert Storm conference in February 1991 among Schwarzkopf and his component commanders, Army corps commanders and the Army Component Commander's staff "bitterly complained that the Air Force was not hitting the targets they had chosen." As Horner later recalled, "I knew that was going to happen." As he also had expected, the Marines, "out of self-protection," followed the Army's lead. Horner believed that they acted on a misunderstanding of the best use of airpower and the tendency of Army corps to "fight in isolation." In response to the ground commanders' demands that sorties be allocated to their fronts, Horner apparently dug in his heels and said "No." Recalling this incident later, Horner said, "Schwarzkopf laughed when I fell on my sword. He didn't give any support at all. But then he summarized it by saying, 'Guys, it's all mine, and I will put it where it needs to be put.'" The CINC never raised the issue again.³⁹

The Joint Force Commander had, in effect, validated the JFACC concept and its role as the proper control of airpower. Despite the success of Operation Desert Storm, three themes emerged from the war as disagreements among the Army and Air Force: (1) command and control under one air component commander was utilized with great effect, but the Army exempted helicopters from this arrangement, (2) the success of the air campaign was touted by many as a revolution in military affairs where the Army would no longer be the decisive force of the future, and (3) air to ground fratricide accounted for 25% of all friendly casualties. While the Army listened with concern, the Air Force began to tout its ability to finally live up to the promises made 60 years earlier and win the nation's wars through the air.⁴⁰ As the services reviewed the lessons of the Gulf War throughout the 1990s, the Army sought to transform into a rapidly deployable and highly mobile force capable of reacting quickly to world crises while the Air Force sought to reduce fratricide and increase its precision engagement capabilities, which were viewed as tremendously effective. The Army was just beginning to transform itself into that type of force when Al-Qaida terrorists slammed civilian airliners into both of the World Trade Center towers and the Pentagon on September 11, 2001.

Impact of the Global War on Terror

Operation Enduring Freedom (OEF) began in October, 2001 with the purpose of destroying the Al-Qaida terrorist organization responsible for the September 11, 2001 attacks on the United States, as well as the radical Taliban regime responsible for harboring them inside Afghanistan. The operation began with long-range precision bombing attacks on Taliban military targets, followed soon after by the insertion of Special Operations Forces (SOF) into Afghanistan and the surrounding countries. These first moves would establish the tone for the remainder of the war as U.S. forces set about destroying the Taliban regime and the Al-Qaida terrorists they harbored. From the start, the war was fought using new tactics, techniques and

procedures as the military sought to target small terrorist cells and camps, a dispersed and mobile Taliban army, and even single individuals like Al-Qaida leader, Osama bin-Laden. The MQ-1 Predator became the first unmanned aerial Intelligence, Surveillance, and Reconnaissance platform used in combat, and also became the first to carry out attacks on an enemy force. Perhaps the best innovation to come from the war was the improved integration of SOF forces and attack aviation using precision weapons. For the first time, a fusion of ground forces, surveillance and reconnaissance, and precision weaponry allowed the air forces to destroy a large portion of a nation's military capability in only three months. This was neither CAS nor strategic attack, but a new way to employ all the elements of power on the battlefield to destroy an enemy at relatively close range.⁴¹

Despite the dramatic successes during Operation Enduring Freedom, one event would prove to be extremely damaging to Army-Air Force relations while also becoming the greatest catalyst for positive change: Operation Anaconda. Envisioned as an operation to encircle and destroy Al-Qaida and Taliban fighters holed up in caves and fighting positions in the mountains surrounding the Shah-i-Kot Valley, Operation Anaconda was an operation led by conventional U.S. forces, supported by U.S. and international SOF and Afghan fighters. From its conception, Anaconda was beset by command and control difficulties between the Army and SOF forces and a stovepiped planning effort. The Combined Forces Air Component headquarters was left out of the planning altogether until only a few days before the start of the operation. As a result, the groundwork was laid for a troubled air to ground joint operation as planning for close air support and pre-planned air strikes on the target area were pieced together at the last moments before the operation began. When the ground forces began to run into fierce resistance from enemy fighters, CAS became the only significant fire support. However, because of the poor initial planning, tactical air control, airspace deconfliction and target identification became problematic. Still, airpower turned the operation from disaster in success, dropping an average of 235 bombs per day over the course of 13 days and killing an estimated 150 to 200 enemy fighters despite the high cost of eight American fatalities.⁴²

Because of the difficulties and fatalities during the operation, sharp criticisms emerged between the Army over the Air Force's CAS performance. The commanding general of the operation, Army General Franklin Hagenbeck, implied that the Air Force was not aggressive and had created an overly slow and unresponsive planning and air support system.⁴³ Immediately, the corporate Air Force published its own version of events and laid the blame publicly and squarely on Hagenbeck.⁴⁴ For the Army, Joint fires, despite the successes, were by no means uniformly timely and accurate. Ground commanders complained that they did not always get the

support they needed on time largely because of the Air Force's insistence that only Air Force ground controllers, which were in short supply, were capable of directing close air support. Operation ANACONDA also demonstrated a continuing requirement for organic immediate suppressive fires that, despite their best efforts, fighters could not deliver.⁴⁵ In response, the Air Force Chief of Staff initiated a comprehensive study to determine possible improvements. While the study rebutted many of Hagenbeck's claims as poor planning and misjudgments on the part of the Army, it also led to substantial changes within the Air Force. First, communications between Army and Air Force leadership, both at the highest levels and at the joint component level were improved. Secondly, integration of Army-Air Force planning staffs began in earnest throughout the theater of operations. And lastly, the Air Force promised to increase the number of tactical air control personnel available to support the Army. These seemingly minor changes would dramatically increase the effectiveness of the air-ground team during the next campaign, Operation Iraqi Freedom.⁴⁶

The operation to topple the regime of Saddam Hussein began on 20 March, 2003. Army and Marine Corps forces, supported by SOF and air forces of the U.S. and coalition allies, fought northward on a parallel course to the Euphrates River toward Baghdad. Within 72 hours of launching the attack, ground forces had advanced 400 kilometers. Throughout it all, the Combined Force Air Component Commander continued to degrade the regime's ability to command and control its forces and provided exceptional CAS to the coalition ground forces in contact. Coalition air forces roamed the skies over Iraq at will, providing CAS, interdicting enemy forces, and striking strategic targets across all of Iraq despite poor weather that sometimes stalled the ground force's advance. Coalition air attacks were responsive, accurate, and precise.⁴⁷ On more than one occasion, responsive, accurate close air support turned the tide for Army ground troops or, as a minimum, reduced their vulnerability to enemy combat systems. The Combined Force Land Component Commander, General David McKiernan, believed that the successful joint warfighting in Operation Iraqi Freedom stemmed not only "from the doctrine and technical interoperability, but it is also the personal relationships."⁴⁸ Major combat operations officially ended on 1 May, 2003. It finally seemed that air-ground cooperation had reached seamless interdependence for the first time in the history of the Army-Air Force relationship.

As major combat operations wound down, the Iraqi insurgency flared. Combat became a close quarters, urban affair where no definitive lines of battle could be drawn. Joint fires required the quick opening of "kill boxes" in support of ground operations. Amazingly, the trust built up by the crucible of major combat between Airmen and Soldiers extended and grew

during these counterinsurgency operations. One Army officer's comment was typical: "I grew up not trusting CAS because at National Training Center exercises and Warfighters [corps- and division-level readiness inspections] it was too hard to coordinate and never where or when I needed it. But here, every time I asked the JTAC to get air—every time—you guys answered the call."⁴⁹

The Future of Close Air Support

The question left for the Army and Air Force remains; what will happen to this superb working relationship once America's involvement in Iraq ends? For certain, the nature of asymmetric warfare forces a review of the current definitions and doctrine surrounding close air support. If the Global War on Terror has taught anything, it is that the enemy of the future may be successful by distributing forces, or in some cases hiding those forces in environments where large scale force-on-force ground action is virtually impossible to achieve.

Technology, and more importantly the thoughtful integration of technology, has always held the promise of increased efficiency, decreased risk of fratricide, and enhanced effectiveness during conflict. Looking to the near future and beyond, we may be on the threshold of actually having this desire become reality. The introduction of systems capable of integrating real-time imagery while providing immediate target mensuration to within a few meters and incorporating friendly-force tracking, like the Target Location and Designation Handoff System, promise to reduce the targeting cycle time and provide unprecedented precision. Now as never before, the tactical ground commander has access to Intelligence, Surveillance and Reconnaissance (ISR) and precision fires via small, portable datalink systems like ROVER.⁵⁰ He is now fully integrated into the local ISR system, whether it be a predator unmanned vehicle or a tactical aircraft with a LITENING pod.⁵¹⁵²

While battlefield integrating systems become more prevalent and reliable, the military services are also beginning to diverge from what is traditionally thought of as CAS. The development and procurement of battlefield systems offer insight into how the services see the future fight, and how best to accomplish their goals. The Army's procurement of precision munitions, like the XM982 Excalibur 155mm shell, the Precision Guided Mortar Munition and the Guided Multiple Launch Rocket System, are examples of that service's attempt to embed precision fires down to the brigade level and below, effectively replacing Air Force aviation as the preferred means of delivering precision fires in close proximity to friendly troops.⁵³ As General David Petraeus, former commander of the U.S. Army's Combined Arms Center summarized the Army's feeling about controlling its own precision weapons:

Now we don't have to have something flying. We don't have to establish 'comms' with someone flying. There's nobody up there who could get shot down. You don't have to have [aerial] refuelers," he said. "The precision is remarkable and you don't have to 'lase' for it. I'm the guy who had two Maverick missiles land behind his tactical command post; one time the laser got too hot from the OH-58 and the second time they think the dust occluded it. Now don't get me wrong, they could have dropped a GPS guided precision munition. But you get what's on the rails of what's flying over you.⁵⁴

Likewise, the Army's new Warrior Unmanned Aerial Vehicle will offer persistent battlefield Intelligence, Surveillance and Reconnaissance with a significant strike capability up to 25,000 feet above sea level. When it becomes available in 2009, the division and corps commander will have at his or her fingertips the ability to view the battlefield, link with his other offensive capabilities (like precision artillery), select the appropriate weapon from a suite of precision munitions slung underneath the Warrior's wing, then provide close air support to his own troops.⁵⁵ Presently, the Army utilizes four types of UAV over the battlefield. With the prevalence of these unmanned aerial vehicles throughout the Army, airspace control becomes a serious issue for Army and Air Force CAS platforms. The non-linear battlefield of today and tomorrow will blur the line between friendly and enemy, making coordination even more difficult. But the addition of precision artillery and armed UAVs will make coordination an absolute necessity. The Air Force continues to seek freedom of action outside the area immediately in front of friendly troops, even as the Army has sought to extend its own area of influence on the battlefield. While the creation of creative fire support measures ("kill boxes" as an example) allow air interdiction of enemy targets, they must be closely coordinated with the Land Component Commander (LCC) so as to prevent fratricide and allow freedom to conduct operations and fires. One effect of these new weapons and the inevitable restrictions they require is that the Air Force is being pushed upward and outward from the forward edge of the battle area.

The question for the Air Force is how it will adapt to the changing environment. To the casual observer, it appears the Air Force is quite willing to cede the low altitude airspace near the forward edge of battle. The Air Force seems ambivalent: on one hand it views CAS as a sacred doctrinal obligation, but on the other hand it also views CAS as inefficient and only a marginal contributor to the joint force commander's overall campaign plan. It is also a mission that is becoming more dangerous as the airspace directly over the close battle area becomes more congested.⁵⁶ Prior to the advent of precision-guided weapons, close air support always demanded that pilots see the "whites of their eyes" before dropping on the enemy.⁵⁷ Besides limiting the envelope in which close-air-support missions could be flown, low-altitude attacks

presented a high level of hazard to aircrews from short-range air defenses, as well as proximity to the ground. This no longer need be the case. In light of all this, the service has made several strategic decisions about its future operations.

Precision munitions continue to evolve into smaller, more lethal weapons. The GBU-39 Small Diameter Bomb developed by the Air Force and Navy allows precision engagement within extremely close range to friendly troops, even as the bomb is released from very high altitude. It is an all-weather weapon and because of its small size allows aircraft to carry more weapons, enhancing time over the target. Even the Army's favorite Air Force combat aircraft, the A-10 Thunderbolt II, is being modified to increase its effectiveness from high altitude. Known as the Precision Engagement program, the massive modification encompasses multiple enhancements that will provide the aircraft with all-weather capability to detect and strike targets from greater altitudes and distances using precision-guided weapons. It will also allow for enhanced data and voice communications with ground forces.⁵⁸ Likewise, the Air Force's newest combat aircraft procurement programs, the F-22 and F-35, will be fully capable of conducting multi-role missions by dropping precision weapons in addition to conducting counter air operations. For certain, the Air Force continues to see support to the ground force as a future mission. The service's desire to procure a short takeoff and vertical landing (STOVL) variant of the F-35 is built around three requirements needed to conduct future air-ground support: the need to use unimproved expeditionary airfields, to produce large numbers of sorties, and to provide persistence over the battlefield.⁵⁹

It is imperative that Air Force leaders understand, however, that the future battlefield will be part of a global information grid and that warfighters will be able to plug into and transfer information whenever it is required. Colonel Robert Killebrew, US Army (ret.), developer and deputy director of the Army After Next program, related one of the issues currently placing the Army and Air Force at odds:

There remain barriers between the uniformed services to achieving this sort of transparency," he said. "One of these is the insistence by the Air Force that only Air Force forward air controllers can call in Air Force fires. The Air Force is making a sincere effort to correct that, but their efforts remain inside the Air Force. They are training more ETACs (Enlisted Terminal Attack Controller)⁶⁰, and they put those people out in the field a lot. But the ultimate solution is going to be when a sergeant of ground forces in any service can speak to the pilot or direct aerially delivered fires without having to go through service connections. The Air Force is correct in that we have not yet reached that level of sophistication in the ground forces, and we need to do that. The ultimate solution that I think will be followed in the Army After Next is a simplified system that allows someone that needs fires on the ground to pick up the phone and dial in the coordinates.⁶¹

As a result of Army calls after Operation Enduring Freedom for more Joint Terminal Attack Controllers (JTACs), the Air Force will create over 400 more JTACs, bringing the total force to approximately 1100.⁶² In the future, these JTACs will likely be required to do missions other than traditional close air support, like terminal guidance of precision guided munitions dropped from high altitude. In the future, it is likely the JTAC will never see the aircraft from which he is receiving support. In addition, the Army and Air Force have agreed on the development of Joint Fires Observers (JFO) capable of directing close air support under certain conditions.⁶³ The Air Force's proposal for Ground Assisted Precision Strike (GAPS) to strike enemy forces or facilities using ground spotters (JTACs, JFOs and Air Force SOF Combat Controllers) or airborne sensors looks like another version of Battlefield Air Interdiction, a concept never fully accepted by the Air Force in the past because of concerns over control.⁶⁴ In BAI, the ground force commander nominated targets in front of the fire support coordination line, but not in close proximity to friendly troops. In GAPS, an airman or JFO would select targets and control air assets regardless of the fire support coordination measures in effect. The days of Airmen on the ground closely controlling Air Force aircraft are numbered as the future ground force will be capable of accurately sending digitized terminal information on the enemy's whereabouts and the pilot will not require close coordination in order to put bombs on target. While the Air Force is not comfortable with that possibility today, it must begin to realize the inevitable will occur. If semantics and cultures are the contentious issues between the services, they must be abandoned. The joint force must focus on achieving objectives, rather than competing over which service is more capable of controlling the mission during the terminal phase of the attack.

The Army may also be pushing the Air Force, unwittingly, toward a predominant focus on what it considers its primary missions: strategic attack and its prerequisite, counterair operations. Field Manual 3.01-20 of March, 2004, calls upon the Army to regularly relinquish tactical control of its Air Defense assets to the Area Air Defense Commander (AADC), who in almost all instances will be the Air Force officer designated as the Joint Force Air Component Commander (JFACC). Given his ability to now directly control theater air defense measures, the JFACC will gain confidence in his air defense and will release aircraft from defensive counter-air missions and reprioritize more strike assets against the theater ballistic missiles, airfields, combat airpower and other centers of gravity deep inside the enemy's rear areas.

If the need for close support of the ground force diminishes because the Army is capable of providing its own precision fires more responsively, then the will be free to strike deeply at the enemy's strategic and operational centers of gravity. In a time of astronomical aircraft costs, decreasing defense budgets, and increased service competition for dollars, this also gives the

Air Force freedom to procure multi-mission aircraft capable of focusing on strategic attack and counterair under all conditions. It also reduces concern that the Army will push for procurement of specialized Air Force attack aircraft. Without Army pressure, funding for future systems focused on ground support, like the STOVL F-35, may find little support outside the Air Force. The Army must be mindful it does not push the Air Force into what it has always desired: freedom of action away from the constraints of the close fight.

Recommendations

The success of future air-ground cooperation among the Army and Air Force rests on using the discord and failures of the past as a catalyst for change, rather than reasons for animosity. Almost without fail, the United States military has been forced to relearn effective joint operations after each conflict. Now, the services must promote and codify in doctrine three requirements that have been neglected after each conflict since 1918.

(1) The services must regularly develop and conduct realistic joint training focusing on air-ground cooperation. A continuing theme throughout the history of CAS has been the failure of the Air Force and Army to consistently and effectively train for joint air-ground operations. Four lingering problems were identified by the Government Accounting Office in 2003: (1) Ground and air forces have limited opportunities to train together in a joint environment. When such joint training does occur, according to DOD reports and unit officials, it is often ineffective. Data from national training centers show that joint close air support training seldom meets the expectations and needs of the ground commander. (2) Similarly, the training that troops receive at their home stations is usually unrealistic because of range restrictions; moreover, it lacks variety--for example, pilots often receive rote, repetitive training because of limited air space and other restrictions. (3) The services train their aircraft controllers, who are the linchpin for close air support coordination, to different standards. The lack of universal standards hampers the ability of these controllers to perform in a joint operation. (4) Finally, within individual military services, the training for close air support missions is often given a lower priority--in doctrine, school curriculum, and training exercises--than other missions.⁶⁵ This training must extend from the JFLCC/JFACC level all the way down to the small units that may request support. This is a service leadership problem, and every leader from the service chiefs of staff down to the squadron and battalion level must end this cycle of neglect.

(2) The services must require cradle to grave leadership training designed to enhance air-ground cooperation. Throughout the history of this inter-service debate over close air support, one thing has remained constant: the senior service leadership sets the tone as either one of

cooperation or distrust. In almost every historical case where disagreements have been exposed to the public spotlight, they revolve around mistrust or misunderstanding of the other service's doctrine, roles and missions. The time has come to break this cycle of personality-based judgments of the other service's intentions. Leadership training at all levels of the Army and Air Force should include lessons on inter-service rivalry, why it exists, and why it will not be tolerated. Each service should include instruction on how each of the other services complement and support the Joint Force Commander's objectives, and how each has a specific role without which the commander's mission cannot be accomplished. The study of how the services each fought for preeminence and budgetary supremacy is a helpful history lesson, but must be used in its proper context to enforce, not to detract from, today's joint interdependence.

(3) Joint doctrine must reflect shortened decision cycles and the changing operational environment. While the Air Force's leadership seems to understand the importance of improving the responsiveness to the ground force, there must also be changes in the doctrine to reflect this new reality.⁶⁶ The services must adapt to the changing nature of information systems, and realize that the ability to send and receive accurate, immediate and trustworthy information will change the nature of air-ground cooperation and coordination. The joint memo recognizing Joint Fires Observers (JFO) as capable of assisting and targeting for air to ground fires is a good start, but must be backed up with realistic training on a regular basis and an understanding that the JFO will become more capable as technology develops.⁶⁷ The services must also look toward the future reality when there is no doctrinal delineation between air-ground cooperation missions. *The Air Force is moving down that path with its decision to use "Counterland" as the doctrinal term for both Air Interdiction and Close Air Support.*⁶⁸ Now the services must take the final steps. The day has come when the lines between air support to SOF, air support to troops in close contact, or ground maneuver units supporting air strikes can be combined under one umbrella called "Air-Ground Cooperation". Joint Publication 3-09.3, *Joint Tactics, Techniques and Procedures for Close Air Support*, should be incorporated into this new Joint Publication which incorporates command and control measures, procedural guidance, deconfliction within the air and ground space, as well as inter and intra-service training requirements. This publication must be the all-encompassing joint document delineating all requirements for the air and ground components. Without this, effective air-ground cooperation will suffer as it has for 90 years.

Conclusion

With the tactical battlefield becoming so fully linked and precise, and the low altitude airspace becoming so congested, the question must then be asked, what becomes of CAS? For the ground force of the near future, precision fires are available from a vast array of sources. The risk of fratricide from artillery and mortars has decreased and the speed and accuracy of fires is enhanced. For the Air Force pilot, datalinked coordinates have decreased the need for verbal communications with an Air Force controller, and allow precision weapons to be released from the safety of high altitude with near certainty of the impact point. Tactically, the U.S. forces are more capable and more deadly. The real concern is over how senior leaders handle this issue. In all our conflicts where aviation was involved, the painful lessons of close air support were discarded after the war only to be relearned in the next conflict. The Army and Air Force's senior leaders must not allow that to happen again. Longstanding dogma and service culture must give way to the reality that close air support is becoming no different from any other strike mission. Whether from a SOF team, a JTAC collocated with an Army maneuver element, an Army sergeant acting as a Joint Fires Observer, or a Warrior UAV, the enemy's location will be verified and the request authorized within seconds. However, the reality remains that a discomfort exists between the Army and Air Force over aircraft operating within the airspace both services want to control and operate freely within.

Our history is full of Army/Air Force disagreements over control of aviation assets supporting the ground force. An Air Force JFACC would never receive Army approval to control the maneuver of an infantry brigade, and the Army must understand that it will not receive operational control of aircraft supporting the ground force; the doctrine is clear and enduring. This issue of which service is best capable of locally controlling fixed-wing tactical air assets must be reevaluated by both the Army and the Air Force. The real effort must be in creating a working environment conducive to the best use of each service's assets.

The quicker the services understand they are both moving away from what has heretofore been called close air support, the better all will be. The Army must understand that its procurement of precision artillery and mortar munitions, its desire for freedom of action and control of the airspace to its front, and its increased reliance on UAVs for surveillance, reconnaissance and attack are pushing the Air Force out of the low altitude airspace. It is, in effect, pushing the Air Force away from what is historically the CAS mission. In fact, the Air Force is becoming more capable of supporting the ground force while moving to higher altitudes. Still, the Air Force must not view these changes within the Army as freedom to abandon the ground support mission, and must continue to reiterate its promise to be there if

and when the Army calls.⁶⁹ Eventually, Air Force leadership must realize that it will not require an Air Force controller to safely provide close support to soldiers. While CAS has always been part of the Air Force lexicon, there is coming a day when it will simply treated as a cooperative mission to interdict an enemy.

Each service must also evaluate what it expects from the other without bias or service rivalry. In times like these, with intense budgetary pressures on the services, each must look at its future force structure and understand that duplication of effort is wasteful and will only lead to more infighting. If the Army wishes to spend money on systems to replace capabilities the Air Force currently provides, it must also understand the Air Force will eventually treat air support missions like any other precision strike mission. Likewise, if the Air Force is developing systems that enhance its support to the ground force, it must articulate those enhancements to all levels of the Army and seek the Army's endorsement and involvement. If these problems of communication continue, animosity and questions over roles and functions inevitably will resurface. Ownership of supporting air assets should be a dead issue among the joint force, as the doctrine is crystal clear. Whether a mission is called "CAS" or "Interdiction" or "Air-Ground Cooperation" will be irrelevant to the Soldier in need of support. Each service's historical baggage must not detract from the real mission: working together to achieve success. Rivalries, jealousy, and disagreement over roles and missions have solved very few of the issues in the past; it is time that Air-Ground Cooperation becomes a mission and a mantra embraced by both the Army and the Air Force.

Endnotes

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³ Ibid., 20

⁴ Warren A. Trest, *Air Force Roles and Missions: A History*, (Air Force History and Museums Program, Washington, D.C., 1998).12.

⁵ Cooling, 26

⁶ Zeimke, Caroline Frieda, *In the Shadow of the Giant, USAF Tactical Air Command in the era of Strategic Bombing, 1945-1955*, (The Ohio State University, 1989), 5

⁷ Ibid, 46

⁸ Ibid, 48

⁹ Henry H. Arnold, "The Air Corps", briefing to U.S. Army War College, Oct 8 1937, text in U.S. Army Heritage and Education Center, 10

¹⁰ Cooling, 53

¹¹ Trest, 76

¹² Edward Homze, "The Continental Experience", *Air Power and Warfare*, Proceedings of the 8th military history symposium, USAF Academy, Oct 20, 1978, 44-45

¹³ On June 20, 1941, the War Department revised Army Regulation 95-5 to create the Army Air Forces with the Air Corps and GHQAF (the latter redesignated as Combat Command) as its major components

¹⁴ Cooling, 52

¹⁵ Ibid, 165

¹⁶ Ibid, 168

¹⁷ Ibid, 173

¹⁸ Ibid, 174

¹⁹ Ibid, 185

²⁰ Ibid, 217

²¹ Ibid, 266

²² Ibid, 325

²³ Robert Sherrod, *Marine Corps Aviation in World War II* (Washington, 1952), 76

²⁴ Cooling, 283

²⁵ The Key West Agreement is the colloquial name for a policy paper entitled "Function of the Armed Forces and the Joint Chiefs of Staff" drafted by James V. Forrestal, the first United States Secretary of Defense. Its most prominent feature was an outline for the division of air assets between the Army, Navy and the newly created Air Force which, with modifications, continues to provide the basis for the division of these assets in the US military today.

²⁶ Stephen Budiansky, *Air Power*, (Penguin Books, New York, New York, 2004), 369

²⁷ Trest, 135

²⁸ Zeimke, 143

²⁹ Cooling, 371

³⁰ Ibid, 377

³¹ Ibid, 395

³² Ibid, 428

³³ Ibid, 466

³⁴ Ibid, 470

³⁵ General William R. Richardson, TRADOC Commander, "FM 100-5: The Airland Battle in 1986," *Military Review*, March 1986

³⁶ Robert Hamilton, "Green and Blue in the Wild Blue", USAF SAAS Thesis, (Maxwell AFB, AL) June 1993, 15

³⁷ Ibid, 198

³⁸ The Goldwater-Nichols Defense Reorganization Act of 1986 was an attempt to fix problems caused by inter-service rivalry, which had emerged during the Vietnam War, contributed to the catastrophic failure of the Iranian hostage rescue mission in 1980, and were still evident in the invasion of Grenada in 1983. The restructuring afforded a combination of effort, integrated planning, shared procurement, and a reduction in inter-service rivalry between commanders. The first successful test of Goldwater-Nichols was the 1991 Gulf War ("Operation Desert Storm"), where it functioned exactly as planned, allowing the U.S. commander, Army General Norman Schwarzkopf, to exercise full control over Marine Corps, Army, Air Force and Navy assets without having to negotiate with the individual services.

³⁹ Thomas Keaney and Eliot Cohen, *Gulf War Airpower Survey Summary Report*, Washington D.C., 1993; 391

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⁴³ Robert H. McElroy, "Fire Support for Operation Anaconda", *Field Artillery*, (September-October 2002): 5-9

⁴⁴ Rebecca Grant, "The Echoes of Anaconda", *Air Force Magazine* (April 2005, Vol 88); available from <http://www.afa.org/magazine/april2005/0405anaconda.asp>; accessed December 2006

⁴⁵ Col Gregory Fontenot, LTC E.J. Degen, LTC David Tohn, *On Point- The United States Army in Operation Iraqi Freedom*, (Ft. Leavenworth, KS; Center for Army Lessons Learned, 2004), 33

⁴⁶ Lambeth's book, *Air Power against Terror*, is in fact, the compilation and book form of the study directed by Gen. Jumper after Operation Anaconda

⁴⁷ Fontenot, Degen, Tohn, 39

⁴⁸ Ibid, 88

⁴⁹ Colonel Howard D. Belote, USAF, "Counterinsurgency Airpower, Air-Ground Integration in the Long War", 1 September 2006; available from <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj06/fal06/belote.html>; accessed 12 Jan 2007

⁵⁰ ROVER - the Remotely Operated Video Enhanced Receiver - is a collection system that has proven vital in both combat and humanitarian missions. Cameras mounted on aircraft or UAVs collect images and send them as full-motion streaming video to the systems carried by ground forces. The real-time imagery provides joint terminal attack controllers an aerial view of what is happening in an area before and after they call in close air support.

⁵¹ BG "Wiley" Post, "USMC Precision Strike", 3 Jan 2005; available from www.dtic.mil/ndia/2005precision_strike_peo/post.ppt; accessed 4 Jan 2007

⁵² LITENING is an advanced airborne infrared targeting and navigation pod. Designed to improve both day and night attack capabilities, LITENING presents pilots with real-time, FLIR and CCD imagery. It is fully operational 24 hours a day and in adverse weather conditions. Litening II can acquire targets altitudes of up to 40,000 feet

⁵³ Interview with Colonel Sam White, US Army Field Artillery Officer. The Army's plan is for artillery to be an integral part of the Brigade Combat Team, and 120mm Precision Guided Mortars will be down to the Battalion level. As the technology is available for smaller mortar rounds, the Army plans to push these precision fires capabilities to the Company level.

⁵⁴ Scott R. Gourley, "Precision Brings Artillery Back into the Fight", (*Army*, Dec 2006) : 58

⁵⁵ Army News Service, "Army Awards Warrior long-range UAV Contract", Aug 10, 2005; available from http://www4.army.mil/ocpa/read.php?story_id_key=7722; internet, accessed 5 Jan 2007

⁵⁶ U.S. Congress, Senate, Armed Services Committee, 2005 Defense Authorization Act hearings, Air Force Chief of Staff John Jumper briefs Congress, Feb. 10, 2005

⁵⁷ General John J. Jumper, comments at Air Force Association National Symposia, Orlando, FL, 13 February, 2003; reprinted in *Air Force Magazine* online at <http://www.afa.org/AEF/pub/jump203.asp> ; accessed 27 November 2006

⁵⁸ Chris McGee, "A-10 upgrade effort enhances Warthog capabilities", Oct 10, 2006; available from <http://www.af.mil/news/story.asp?storyID=123029281>; internet, accessed 22 Dec 2006

⁵⁹ Rebecca Grant, "Expeditionary Fighter", March 5, 2005; available from <http://www.afa.org/magazine/March2005/0305fighter.asp>; internet, accessed 8 Jan 2007

⁶⁰ Effective 3 September 2003 with the publishing of Joint Publication (JP) 3-09.3, *Tactics, Techniques and Procedures (TTP) for Close Air Support*, the joint community codified the requirements for an individual to direct the actions of combat aircraft engaged in CAS and other

air operations. This position, called a "joint terminal attack controller," or JTAC, was created to standardize the certification and qualification process for terminal attack controllers to ensure a common capability across the services.

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⁶⁴ Phillip S. Meilenger, "Air-Ground Cooperation Perspectives", *Military Review* (November-December 2003), 57

⁶⁵ Government Accounting Office study GAO-03-505, *Lingering Training and Equipment Issues Hamper Air Support of Ground Force*, 2 June 2003

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⁶⁷ Memorandum between US Army G-3, US Air Force DCS, Air and Space, and USSOCOM Director of Operations Support Group, "MOA on Joint Fires Observer", 14 Nov 2005

⁶⁸ Air Force Doctrine Document 1, *Air Force Basic Doctrine*, 17 November 2003, 44-45

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